

LISTING OF THE CLAIMS

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Currently Amended) A culturing device as defined in claim 1 33, wherein there are a plurality of culture containers, and wherein each culture container is associated with a pair of discharge lines.
5. (Previously Amended) A culturing device as defined in claim 4, wherein at least one pair of discharge lines is associated with more than one of the individual culture containers.
6. (Canceled)
7. (Canceled)
8. (Currently Amended) A culturing device as defined in claim 7 33, wherein said culture medium supply line is connected to at least one culture container and communicates with a riser on which at least one level sensor is carried.
9. (Previously Amended) A culturing device as defined in claim 8, wherein the level sensor is vertically adjustable relative to the riser.
10. (Currently Amended) A culturing device as defined in claim 1 33, wherein the level sensor comprises a plurality of level sensors, and wherein at least one level sensor includes a forked photoelectric barrier.
11. (Previously Amended) A culturing device as defined in claim 10, wherein at least one of the level sensors continuously measures the culture medium level.

12. (Currently Amended) A culturing device as defined in claim + 33, wherein there are a plurality of level sensors, and wherein at least one level sensor includes a level switch that responds to a predetermined target level.

13. (Currently Amended) A culturing device as defined in claim + 32, further comprising:

a plurality of culture containers

an exterior housing;

a plurality of discrete modules within the housing such that there is a culture container within each module; and

a culture medium supply distribution system in fluid communication with a common culture medium supply line and with each of the modules.

14. (Original) A culturing device as defined in claim 13, wherein the supply distribution system has a single connection in fluid communication with the supply mechanism, and wherein the single connection is disposed at a lowermost elevation of the supply distribution system.

15. (Original) A culturing device as defined in claim 13, wherein the exterior housing has a plurality of separate connectors each coupled to a withdrawal line of a respective one of the discrete modules.

16. (Previously Amended) A culturing device as defined in claim 13, wherein each of the discrete modules includes a discrete temperature-control housing surrounding each culture container within the corresponding discrete module, and wherein each temperature-control housing has a temperature-control medium inlet and a temperature-control medium discharge.

17. (Original) A culturing device as defined in claim 16, wherein each temperature-control medium discharge is in fluid communication with an overflow apparatus lying in an upper region of the respective temperature-control housing, and wherein the overflow apparatus is positioned diametrically opposite to the temperature-control medium inlet within the respective temperature-control housing.

18. (Original) A culturing device as defined in claim 17, wherein the temperature control medium inlet and discharge of the temperature-control housing of each of the discrete modules is connected in series relative to a flow path of the temperature-control medium.

19. (Currently Amended) A culturing device as defined in claim ~~1~~ 33, wherein the ~~culture container~~ plurality of discrete modules is disposed within an exterior housing that can provide a sealed environment within an interior of the housing.

20. (Previously Amended) A culturing device as defined in claim 19, wherein the ~~outer~~ exterior housing has a connection for introducing a gaseous medium into the interior of the housing.

21. (Currently Amended) A culturing device as described in claim ~~1~~ 33, wherein certain components of the culturing device that must be sterilized are fabricated from materials that can withstand sterilization.

22. (Previously amended) A culturing device as defined in claim 21, wherein the sterilizable materials are selected from a group consisting of glass and silicone.

23. (Currently Amended) A culturing device as defined in claim ~~1~~ 33, wherein the supply mechanism includes a bidirectional pump.

24. (Original) A culturing device as described in claim 23, wherein the bidirectional pump is a peristaltic pump.

25. (Currently Amended) A culturing device as defined in claim ~~1~~ 33, wherein there is a pair of level sensors wherein one of the sensors controls the supply mechanism for the submerged supply condition and the other sensor controls the supply mechanism for the basal supply condition.

26. (Currently Amended) A culturing device as defined in claim ~~1~~ 33, further comprising:

a programmable controller that can control a culture medium target level transducer in a time-dependent manner.

27. (Previously Amended) A culturing device as defined in claim 26, wherein the programmable controller can adjust a target level value periodically between at least two level values, a first level value corresponding to a liquid level that is a predetermined distance above a top side of a culture surface of the cell culture insert in the culture container, and a second level value corresponding to a liquid level that is a predetermined distance below the first level.

28-31. (canceled)

32. (Previously amended) A culturing device comprising:
a plurality of culture containers adapted to receive and to discharge a culture medium;
porous cell culture inserts, one for each of the plurality of culture containers;
removably received within the culture containers, said cell culture inserts each providing a horizontal culture surface wherein the plurality of culture containers are positioned so that the horizontal culture surfaces lie in a common horizontal plane; and,

a supply mechanism for introducing the culture medium into the plurality of culture containers and for discharging the culture medium from the plurality of culture containers;
and;

wherein a common culture medium supply line connected to the plurality of culture containers communicates with a riser on which at least one level sensor which is vertically adjustable relative to said riser is carried to sense a level of the culture medium for the plurality of culture containers, wherein the sensor controls the supply mechanism as a function of an output signal of the level sensor representing the level of the culture medium such that the device can achieve both a sustained submerged culture medium supply condition and a sustained basal culture medium supply condition, wherein said sustained basal culture medium supply condition allows for exposure of cultured cells on said cell culture insert to gases, aerosols and particulate matter from above and culture medium from below through the porous cell culture insert.

33. (New) A culturing device comprising:

- an exterior housing;
- a plurality of culture containers adapted to receive and discharge a culture medium;
- a plurality of discrete modules within the housing such that there is a plurality of culture containers within each module;
- a porous cell culture insert removably received and providing a horizontal culture surface in each of the culture containers,
- said plurality of culture containers being positioned so that the horizontal culture surfaces lie in a common horizontal plane;
- a supply mechanism for introducing culture medium into each of said culture containers and for discharging the culture medium from each of the culture containers;
- a culture medium distribution system in fluid communication with a culture medium supply line and with each of the modules;
- wherein the exterior housing has a plurality of separate connectors each coupled to a withdrawal line of a respective one of the discrete modules; and
- wherein each of the discrete modules includes a discrete temperature-control housing surrounding each culture container within the corresponding discrete module, and wherein each temperature control housing has a temperature-control medium inlet and a temperature control medium discharge in fluid communication with an overflow apparatus lying in an upper region of the respective temperature-control housing which overflow apparatus is positioned diametrically opposite to the temperature-control medium inlet within the respective temperature control housing and wherein each of the discrete temperature-control housings can each individually support different temperatures; and
- a level sensor cooperating with at least one of the culture containers to sense a level of the culture medium for the culture containers, wherein the sensor controls the supply mechanism as a function of an output signal of the level sensor representing the level of the culture medium such that the device can achieve both a sustained submerged culture medium supply condition and a sustained basal culture supply condition, wherein said sustained basal culture medium supply condition allows for exposure of cultured cells on said culture cell insert to gases, aerosols and particulate matter from above and culture medium from below through the porous cell culture insert.

34. (New) A culturing device as defined in claim 32, wherein there are a plurality of culture containers, and wherein each culture container is associated with a pair of discharge lines.

35. (New) A culturing device as defined in claim 32, wherein the level sensor is vertically adjustable relative to the riser.

36. (New) A culturing device as defined in claim 32, wherein the level sensor comprises a plurality of level sensors, and wherein at least one level sensor includes a forked photoelectric barrier.

37. (New) A culturing device as defined in claim 36, wherein at least one of the level sensors continuously measures the culture medium level.

38. (New) A culturing device as defines in claim 32, wherein there are a plurality of level sensors, and wherein at least one level sensor includes a level switch that responds to a predetermined target level.

39. (New) A culturing device as defined in claim 32, wherein the supply distribution system has a single connection in fluid communication with the supply mechanism, and wherein the single connection is disposed at a lowermost elevation of the supply distribution system.

40. (New) A culturing device as defined in claim 32, wherein the culture container is disposed within an exterior housing that can provide a sealed environment within an interior of the housing.

41. (New) A culturing device as defined in claim 40, wherein the outer housing has a connection for introducing a gaseous medium into the interior of the housing.

42. (New) A culturing device as described in claim 32, wherein certain components of the culturing device that must be sterilized are fabricated from materials that can withstand sterilization.

43. (New) A culturing device as defined in claim 42, wherein the sterilizable materials are selected from a group consisting of glass and silicone.

44. (New) A culturing device as defined in claim 32, wherein the supply mechanism includes a bidirectional pump.

45. (New) A culturing device as described in claim 44, wherein the bidirectional pump is a peristaltic pump.

46. (New) A culturing device as defined in claim 32, wherein there is a pair of level sensors wherein one of the sensors controls the supply mechanism for the submerged supply condition and the other sensor controls the supply mechanism for the basal supply condition.

47. (New) A culturing device as defined in claim 32, further comprising:
a programmable controller that can control a culture medium target level transducer in a time-dependent manner.

48. (New) A culturing device as defined in claim 47, wherein the programmable controller can adjust a target level value periodically between at least two level values, a first level value corresponding to a liquid level that is a predetermined distance above a top side of a culture surface of the cell culture insert in the culture container, and a second level value corresponding to a liquid level that is a predetermined distance below the first level.

49. (New) A culturing device as defined in claim 33, wherein the exterior housing has a plurality of separate connectors each coupled to a withdrawal line of a respective one of the discrete modules.

50. (New) A culturing device as defined in claim 33, wherein each temperature-control medium discharge is in fluid communication with an overflow apparatus lying in an upper region of the respective temperature-control housing, and wherein the overflow apparatus is positioned diametrically opposite to the temperature-control medium inlet within the respective temperature-control housing.

51. (New) A culturing device as defined in claim 33, wherein the temperature control medium inlet and discharge of the temperature-control housing of each of the discrete modules is connected in series relative to a flow path of the temperature-control medium.